

R E M A R K S / A R G U M E N T S

In the Office Action of February 6, 2007, the Examiner rejected claims 1 and 3-6 under 35 U.S.C. §102(b) as anticipated by Holmqvist (US 5,220,275). Further Examiner rejected claims 1, 3-6 and 9 under 35 U.S.C. §102(b) as anticipated by Summers (GB 2089601A). Claims 7-8 and 10-12 stand rejected under 35 U.S.C. §103(a) as unpatentable over Abe (US 5359298) in view of Summers (GB 2089601A).

Examiner objected to claim 2 as dependent on a rejected claim but stated that the claim would be allowable if rewritten in independent form. Applicants amend claim 2 by incorporating limitations of the original claim 1, as indicated above.

Applicants cancelled claims 1, 5, 6, 9, 11 and 12.

Applicants appreciate the time and consideration provided by the Examiner in reviewing this application and finding claim 2 to be allowable, but respectfully traverse the rejections of claims 3, 4, 7, 8 and 10 at least for the following reasons.

Rejection under 35 U.S.C. 102 (b)

Applicants amended claims 3 and 7 by incorporating limitation of a constituent element of original claim 5. Amended claims 10 is redrafted based on original claim 10 and currently amended claim 2.

The phase comparator circuit according to the present invention includes four latches L1 to L4. The phase comparator circuit according to Holmqvist (Fig.3) includes four D type flip-flops 31-34 (Column 7, line 52-54) and Summers (Fig.7) includes four D-type flip-flops 701 to 704 (Page 3, line 104-106). The operation of the latches differs from the operation of the D type flip-flops. Thus, the operation of the phase comparator circuit of the present invention differs from the operation of the phase comparator circuit according to Holmqvist and Summers. (See enclosed copies of Annexes with Figs. 1 to 6 originally attached to the Response to Office Action filed on 10/26/06).

In the phase comparator circuit according to the present invention, the pulse width of the phase error signal Error 1 and the pulse width of the phase error signal Error 2 are to be extended to 1.5 times respectively. (See page 11, line 16-23 of the specification)

That is, the pulse width of the phase error signal is extended by the time width corresponding to the unit time width of the data signal.

Fig. 4 of the attached copy of the Annexes illustrates that the phase of CK1 and CK2 gains by T/4 to the phase of Din, and Fig.6 illustrates that the phase of CK1 and CK2 delays for T/4 behind the phase of Din. Neither two exclusive OR gates 35, 36 in Holmqvist nor exclusive OR (705, 706) in Summers output a pulse which has a pulse width varied by the phase error between the data signal Din and the clock signals CK1 and CK2.

Holmqvist and Summers do not disclose or suggest that the pulse width of the phase error signal is extended by the time width corresponding to the unit time width of the data signal. Thus, Applicants believe that claims 3 and 7 as presently amended are allowable over the cited prior art. Claim 4 is dependent upon claim 3, and is allowable if claim 3 is allowed.

Rejection under 35 U.S.C. 103(a)

Examiner rejected claims 7-8 and 10-12 as unpatentable over Abe (US 5,359,298) in view of Summers (GB 2089601A).

Applicants cancelled claims 11 and 12, and amended claim 7 as indicated above. Claim 10 is amended by incorporating limitation of construction of the phase comparator circuit as cited in currently amended claim 2. Applicants respectfully submit that there is no suggestion or motivation in any prior art reference to combine the loop filters of the voltage-controlled oscillator of Abe with phase sensitive detector of Summers' UK patent application 2089601. However, even if Abe and Summers can be combined, such combination will not make claims 7 and 10 obvious. Thus, Applicants believe that claims 7 and 10 are novel and allowable over the cited prior art. Claim 8 is dependent upon claim 7, and is also allowable.

In view of the above, Applicants respectfully submit that all pending claims are allowable, and the application is now in condition for allowance, which allowance is earnestly solicited.

Amendment dated July 3, 2007

Response to Office Action of February 6, 2007

The Commissioner is hereby authorized to charge any fees, which may be required in connection with this correspondence, to Deposit Account No. 06-1135.

Respectfully submitted,

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Annexes to Response to Office Action filed 10/26/06